

REMARKS

The Official Action mailed May 21, 2004, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Accordingly, the Applicants respectfully submit that this response is being timely filed.

The Applicants note with appreciation the consideration of the Information Disclosure Statements filed on July 17, 1998, March 21, 2000, April 25, 2000, July 17, 2000, November 30, 2000, March 9, 2001, April 11, 2001, November 2, 2001, and March 29, 2004.

Claims 1-8 and 11-73 are pending in the present application, of which claims 1, 5, 11, 12, 18, 23, 28, 33, 38, 40, 43, 47, 53, 59, 64 and 69 are independent. Claims 1, 5, 11, 12, 18, 23, 28, 33, 38, 40, 47, 53, 59, 64 and 69 have been amended to better recite the features of the present invention. The specification has been amended to clarify that silicon oxide is not a resinous material. No new matter has been added. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 3 of the Official Action rejects claims 1-8 and 11-73 as obvious based on the combination of JP 63-279228 to Nishiki et al. and U.S. Patent No. 5,427,961 to Takenouchi et al. The Applicants respectfully traverse the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some

teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. The claims recite that a TFT is interposed between a resinous substrate and a resinous interlayer insulating layer. The Applicants respectfully submit that this configuration is advantageous, because undesirable damage to the TFT caused by bending the device is reduced. Damage is reduced because the resinous interlayer insulating layer has higher flexibility than that of other insulating materials such as inorganic insulating materials. Nishiki and Takenouchi, either alone or in combination, do not teach or suggest at least the above-referenced features of the present invention.

Specifically, all of the independent claims recite a first resinous substrate having an uneven surface, a second substrate, a resinous layer having a planarized surface, a semiconductor layer, and an interlayer insulating layer comprising a resinous material, where a TFT is interposed between the resinous substrate and the resinous interlayer insulating layer. Nishiki appears to teach a liquid crystal 39 between a first glass substrate 21 and a second glass substrate 31, a TFT 15 formed over the glass substrate 21, a protective film 27 over the TFT 15, an alignment film 37 over the protective film 27, and a separate alignment film 37 over the second substrate 31, a color filter 33 and a common electrode 35 (Figure 5). The Official Action concedes that "Nishiki et al. fails to disclose the substrate being a resinous substrate" and that "Nishiki et al. fails to show the resinous material ... as claimed" (page 3, Id.). The Applicants

respectfully submit that Nishiki also fails to disclose at least a first resinous substrate having an uneven surface, a second resinous substrate, a resinous layer having a planarized surface, and an interlayer insulating layer comprising resinous material, where a TFT is interposed between the resinous substrate and the resinous interlayer insulating layer.

Takenouchi does not cure the deficiencies in Nishiki. Takenouchi appears to teach PET film 10, acrylic resin layer 11, ITO film 12 as a first electrode, photoelectric conversion layer 13 and aluminum electrode 14 as a second electrode (Figure 1, column 5, lines 1-12). Nishiki and Takenouchi, either alone or in combination, do not teach or suggest a TFT interposed between a resinous substrate and a resinous interlayer insulating layer.

Since Nishiki and Takenouchi do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Furthermore, MPEP § 2142 states that the examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. It is respectfully submitted that the Official Action has failed to carry this burden. While the Official Action relies on various teachings of the cited prior art to disclose aspects of the claimed invention and asserts that these aspects could be used together, it is submitted that the Official Action does not adequately set forth why one of skill in the art would combine the references to achieve the present invention.

There is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Nishiki and Takenouchi or to combine reference teachings to achieve the claimed invention. The Official Action asserts that "Nishiki et al. teaches an insulating film (polyimide) having a flat surface provided on the first substrate to planarize the surface" (page 3, Paper No. 59). The Official Action concedes that "Nishiki et al. fails to disclose the substrate being

a resinous substrate” and that “Nishiki et al. fails to show the resinous material ... as claimed” (page 3, Paper No. 59). As noted above, the Applicants respectfully submit that Nishiki also fails to disclose at least a first resinous substrate having an uneven surface, a second resinous substrate, a resinous layer having a planarized surface, and an interlayer insulating layer comprising resinous material, where a TFT is interposed between the resinous substrate and the resinous interlayer insulating layer.

The Official Action relies on Takenouchi to allegedly teach “a semiconductor device having a resinous substrate” and “a resinous layer provided on the resinous substrate” (Id.). The Official Action asserts that “it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tamahiko Nishiki et al. reference by including the resinous substrate taught by Takenouchi et al. in order to reduce cost and to obtain a device easily handled having a larger field of application and free from oligomeros” (pages 3-4, Id.). The Applicants respectfully disagree and traverse the above assertions in the Official Action.

As mentioned in the present specification, a resinous substrate has poor heat resistance (see the second to last paragraph on page 2). In forming a TFT on the resinous substrate, the present inventors have found that it is preferable to use a lower temperature process for the resinous substrate. In the case of forming an interlayer insulating layer comprising silicon oxide or silicon nitride over the resinous substrate by PCVD, the resinous substrate is damaged because the substrate is heated at a temperature of 300°C or more, in general. On the other hand, the present inventors have found that the resinous interlayer insulating layer can be formed by a coating method at a lower temperature than PCVD without damaging the resinous substrate. Thus, the present inventors have found that the resinous interlayer insulating layer is more advantageous for the resinous substrate in view of TFT processes. On the other hand, it appears that neither Nishiki nor Takenouchi suggests or teaches the materiality of a resinous interlayer insulating layer in case of forming a TFT over a resinous substrate.

The Official Action has not provided sufficient reason to show how or why one would be motivated to make all the changes necessary to convert the liquid crystal device of Nishiki into the device of the present invention based on Takenouchi. Specifically, Nishiki and Takenouchi, either alone or in combination, fail to teach or suggest how or why one of ordinary skill in the art at the time of the present invention would have been motivated to change the first glass substrate 21 of Nishiki to the PET (resinous) substrate 10 of Takenouchi, to change the second glass substrate 31 of Nishiki to a second resinous substrate, which is not disclosed in Takenouchi, to somehow insert the acrylic resin (resinous) layer 11 of Takenouchi in between glass substrate 21 and TFT 15 of Nishiki, to provide TFT 15 on a planarized surface of the layer 11, and to change the protective film 27 of Nishiki to an interlayer insulating layer comprising resinous material. The prior art does not provide sufficient motivation to teach or suggest all of these changes.

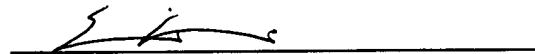
Furthermore, Nishiki is silent as to any problem associated with Oligomeros, the alleged motivation cited in the Official Action, and thus one of skill in the art would not have recognized any need to look to Takenouchi. It is also asserted that the prior art does not support a conclusion that the asserted combination is necessary to, or would in fact, "reduce cost" or result in "a device easily handled having a larger field of application" as asserted in the Official Action.

Therefore, in the present application, it is respectfully submitted that the prior art of record, alone or in combination, does not expressly or impliedly suggest the claimed invention and the Official Action has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

For the reasons stated above, the Official Action has not formed a proper *prima facie* case of obviousness. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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